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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/786,432

Filing Date: March 05, 2001

Appellant(s): CHEVANCE ET AL.

Guy H Eriksen (#41,736)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 8/22/06 appealing from the Office action mailed on 3/14/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,193,001	Kerdranrvat	3-1993
6,317,460	Lee	11-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claims 1-4, 7, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerdranrvat in view of Lee.

Kerdranrvat discloses method of movement estimation for a sequence of images including segmentation of a current video image into image blocks, movement estimation per image block between the current image and a previous image (Kerdranrvat: column 3, lines 35-40) in order to obtain a movement vector field for said current image (Kerdranrvat: column 2,

lines 36-39), a stage of reassignment of a vector to a block by selecting one movement vector from among N predominant vectors (Kerdranvrat: column 2, lines 44-48), wherein the predominant vectors are the ones of the group of vectors belonging to the movement vector field for said current image and at least to the movement vector field for a preceding image (Kerdranvrat: column 2, lines 9-19) corresponding to a movement vector between said preceding image and a further preceding image (Kerdranvrat: column 7, lines 40-50: "...using vectors selected by the preceding phases..." which are multiple preceding images), the vectors being scaled according to the temporal distance to which they correspond (Kerdranvrat: column 2 lines 53-60: wherein he shows he scales the number of vectors depending on the necessary or available flow rate). However, Kerdranvrat fails disclose scaling the vectors according to the temporal distance as in the claims. Lee discloses a motion estimation method which discloses that temporal scaling according to a temporal distance was well known at the time the invention is widely used to reduce the processing load on an image encoding scheme (Lee: abstract, lines all). Therefore it would have been obvious to one of ordinary skill in the art to incorporate Lee's temporal scaling based on a temporal distance to the Kerdranvrat dominant vectors in order to reduce the processing load would be desirable of the Kerdranvrat method. The Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has all of the features of claim 1.

Regarding claim 2, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, that for a predominant vector, second-order regional maxima are detected so as not to be taken into account during the selection of the other predominant vectors.

(Kerdranvrat: column 6, lines 16-29: note the maxima must be detected before it can be eliminated), as in the claim.

Regarding claim 3, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has the predominant vectors are selected in each of, the four directions (Kerdranvrat: column 8, lines 35-45: motion vectors occur in any number of directions therefore the dominant vector could as well), in the claim.

Regarding claim 4, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has the selection of the reassigned vector is based on the value of the displaced frame difference (Kerdranvrat: column 7, lines 55-67; column 8, lines 1-10), as in the claim.

Regarding claim 7, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has the selection of the reassigned vector is based on the calculation of the activity in the inter-image difference block (Kerdranvrat: column 7, lines 44-54), as in the claim.

Regarding claim 10, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has the components of the vectors used during the DFD calculations are the spatially filtered components (Kerdranvrat: column 4, lines 44-67), as the claim.

Regarding claim 11, the Kerdranvrat method, now incorporating Lee's temporal scaling based on a temporal distance, has wherein the components of the vectors used during the spatial-gradient calculations are the spatially filtered components (Kerdranvrat: column 4, lines 44-67), as in the claim.

(10) Response to Argument

- I. Appellants' arguments filed with respect to claims 1-4, 7, and 10-11 as filed on 8/22/06 have been fully considered but they are not persuasive.
- II. Claims 1-4, 7, and 10-11 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Kerdranvrat in view of Lee.
- III. The Appellant presents five arguments contending the Examiner's pending rejection of claims 1-4, 7, and 10-11 under 35 U.S.C. 103(a) as being unpatentable over Kerdranvrat in view of Lee. However, after a careful consideration of the arguments presented, and further scrutiny of the applied references, the Examiner must respectfully disagree and submit to the Board that rejection is proper and should be sustained.
- IV. After providing a summary of the applied references (Brief of 8/22/06: page 5, lines 13-19; page 6, lines 1-13), establishing the legal basis for the Appellants' arguments (Brief of 8/22/06: page 6, lines 14-25; page 7, lines 1-11), and outlining the pertinent elements of appealed claims for discussion (Brief of 8/22/06: page 7, lines 12-25; page 8, lines 1-3), the Appellants' argue that the primary Kerdranvrat reference fails to read upon "...a stage of reassignment of a vector to a block by selecting one movement vector from among N predominant vectors, wherein the predominant vectors are ones of the group of vectors belonging to the movement vector field for said current image and at least to the movement vector field for a preceding image..." as in the claims (Brief of 8/22/06: page 8, lines 4-18). The Examiner respectfully disagrees. It is noted that the reference discloses multiple areas (tables) for the dominant motion vectors. The SORT table and MEM 1 represent the predominant Not and Nmax, respectively, corresponding to the

predominant vectors of the current frame (Kerdranrvat: column 7, lines 25-30 and 55-60), and the MEM2 area (table) has the predominant vectors corresponding to dominant vectors of the previous image (Kerdranrvat: column 7, lines 20-25). The disclosed time filtering of the SORT table eliminates outliers (i.e. predominant vectors outside the dispersion range) from the reassignment process (Kedranvrat: column 4, lines 10-35), as those vectors are likely erroneous. The MEM1 and MEM2 tables are used for the time-filtering process with the results being applied to the SORT table by the elimination of the outliers (i.e. distant predominant vectors) from its table entries (Kedranvrat: column 7, lines 29-31). So after the SORT table is time filtered, both its predominant vectors (current image), and the dominant vectors from the MEM2 table (preceding image) are transferred to the reassignment module (Kerdranrvat: column 7, lines 33-35). The reason that both sets of vectors are transferred is in order to account for uncovered objects between images (Kerdranrvat: column 7, lines 38-40), and also to account for complex motions between frames (Kerdranrvat: column 6, lines 29-31). While it is noted that the remaining SORT table current image predominant motion vectors are close to those of MEM2 table preceding image predominant motion vectors, they are actually different in values, and thus both sets need to be considered. The reference only updates the MEM2 table with the MEM1 table values, but doesn't overwrite the MEM2 table values (Kerdranrvat: column 7, lines 35-37). Since the pre-MEM1 table transfer MEM2 table values correspond to the preceding dominant motion vector, those distance values are already in the reassignment module, and thus, only the distance values for the newly generated SORT values corresponding to the current image predominant motion vectors are calculated (Kerdranrvat: column 7, lines 65-68; column 8, lines 1-10). After the SORT values are calculated, both sets of values for the SORT values and MEM2

values are used for the reassigning step (Kedranrvat: column 7, lines 55-60). Accordingly, the Examiner maintains that both current image and preceding image predominant motion vectors are used for the reassignment process as in the claims.

Secondly, the Appellants argue that Kedranrvat fails to select "...a vector from among all motion vectors of the current movement vector field and the previous movement vector field..." as the reference discloses filtering out vectors (Brief of 8/22/06: page 8, lines 19-26; page 9, lines 1-3). The Examiner respectfully disagrees. It is noted that claim 1 recites "...wherein the predominant vectors are ones of *the group of vectors* belonging to the movement field for said current image and at least to the movement vector field of a preceding image..." which implies a group of predominant motion vectors with the characteristics of the associated movement vector fields. But a group is not all-inclusive, and as a matter fact, a group implies a subset of the entirety, otherwise, why group it. The word "all" fails to appear anywhere in this claim, and thus based on the language of the claims, the Examiner must submit to the Board that all the motion vectors of the current movement field are not used in the claimed selection process, but that only a "group" which the movement field characteristics is. As such, Kedranrvat's time-filtered SORT table (Kedranrvat: column 7, lines 10-15 and 33-36), as discussed above, represents a group of predominant motion vectors from a movement field of a current image and the MEM2 table values represent a group of predominant vectors from a movement field of the preceding image (Kedranrvat: column 7, lines 22-28) which are used in the reassignment stage (Kedranrvat: column 7, lines 44-49). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "all the motion vectors...") are not recited in the

rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Accordingly, the Examiner maintains that the limitation is met insomuch as it can be reasonably ascertained from the broadly recited language in the claim.

Additionally, the Appellants argue that the instant invention distinguishes over the Kerdranrvat disclosure which since it uses filtering cannot account for certain types of motion (Brief of 8/22/06: page 9, lines 4-19). The Examiner respectfully disagrees. It is noted that the time filtering is only used to eliminate outliers, as discussed above, but doesn't preclude detection of the complex types of motion that are under discussion (Kerdranrvat: column 6, lines 29-32: global motions such as "zoom" or "rotation"; column 7, lines 35-41: "moving/uncovered" objects in a common background). Accordingly, the Examiner maintains that since Kerdranrvat can account for such complex types of motions, the filtering process fails to make it "fundamentally different..." from the instant invention as claimed.

Furthermore, the Appellants contend that Lee fails to disclose "...a stage of reassignment of a vector to a block by selecting one movement vector from among N predominant vectors, wherein the predominant vectors are ones of the group of vectors belonging to the movement vector field for said current image and at least to the movement vector field for a preceding image..." as in the claims (Brief of 8/22/06: page 9, lines 20-27; page 10, lines 1-10). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Examiner notes that

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Kerdranrvat has already been discussed as addressing this limitation, and as such, Lee doesn't have to address this feature, but only show the "scaling" feature of the pending rejection, which it does. Lee addresses the "... a stage of reassignment of a vector to a block by selecting one movement vector from among N predominant vectors, wherein the predominant vectors are ones of the group of vectors belonging to the movement vector field for said current image and at least to the movement vector field for a preceding image..." limitation from its combination with the primary Kerdranrvat reference.

Lastly, the Appellants argue that combination of Kerdranrvat-Lee combination would not reassign vectors but only classify vectors (Brief of 8/22/06: page 10, lines 11-24; page 11, lines 1-7). The Examiner strongly disagrees. Since the "movement field from a current image and the movement field from a preceding image..." has been discussed above, it will not be repeated here. However, it is noted that Kerdranrvat clearly discloses a "reassigning step..." which reads on the claims (Kerdranrvat: column 7, lines 43-67; column 8, lines 1-45). Accordingly, the Examiner maintains that Kerdranrvat is directed towards motion vector "reassigning" and not just classification.

For the above reasons, it is believed that the rejections should be sustained.

(11) Allowable Subject Matter

Claims 6, 8, 9, 12-13 are objected to as being dependent upon a rejected base claim; but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The combination of elements claimed in the objected to claims was not found in a prior art search nor considered obvious by the Examiner, because the closest prior art uses a different assignment method with regards to the assignment of the predominant vectors. Accordingly, if claims 5-6, 8-9, and 12-13 are amended as indicated, and appealed claims 1-4, 7, and 10-11 are canceled, the application would be placed in a condition for allowance.

(12) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(13) Oral Hearing

The Appellants have not requested an oral hearing.

Conclusion

Respectfully submitted,

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November 13, 2006
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